

PiezoStar® Accelerometer

Type 8765A250M5

Miniature, Voltage Triaxial Accelerometer

Type 8765A250M5 is a miniature, 6.4 gram center hole triaxial accelerometer with a ± 250 g measurement range and 20 mV/g sensitivity. It measures shock and vibration in three orthogonal axes.

- Low mass
- PiezoStar® sensing element
- High temperature operation
- Hermetically sealed, miniature design
- New miniature, 4 pin connector
- Very low sensitivity variations over temperature
- Low base strain sensitivity
- Low impedance voltage output
- Conforming to CE

Description

Type 8765A250M5 is a miniature IEPE triaxial accelerometer designed for high temperature applications. The triaxial design permits simultaneous shock and vibration measurements in three perpendicular axes: X, Y, and Z.

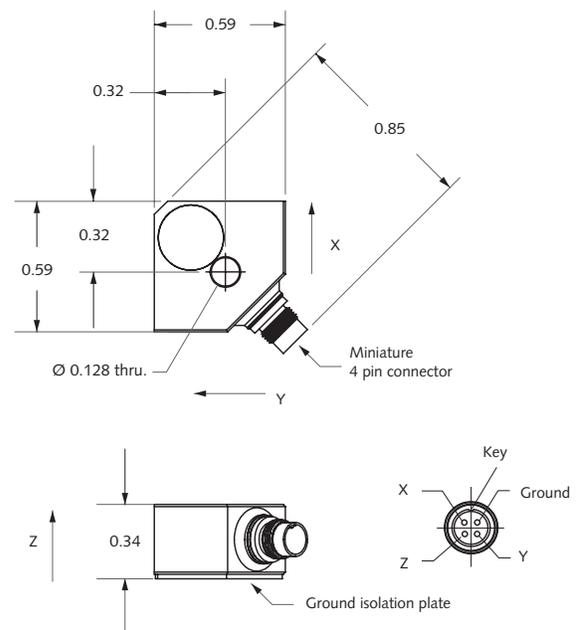
Kistler's PiezoStar element design provides a wide operating frequency range along with extremely low sensitivity to thermal transients. The accelerometer operates from $-65 \dots 330$ °F using a welded, hermetic and ground isolated housing with a miniature 4 pin ceramic insulated connector for reliable measurements and long-term stability, especially at higher operating temperatures. Type 8765A250M5 also uses Kistler PiezoStar Crystals and high gain integral hybrid microelectronics, providing very low sensitivity variation over the operating temperature range compared to quartz and ceramic element designs.

Application

The extremely low weight of Type 8765A250M5 accelerometer is highly attractive where mass loading of test structure is a major concern. Applications include automotive under-the-hood and under-the-vehicle testing, and subsystem vibration testing for aerospace applications. The accelerometer is ground isolated and optional Kistler shielded cables are known for offering high measured signal integrity for the intended applications. In addition, the center-hole mounting permits flexibility for 360° orientation of the cable, allowing for a wide selection of locations for mounting. Type 8765A250M5 also offers high sensitivity over a wide frequency range, resolving a wide range of vibration measurements.



Dimensions



Dimensions are shown in [in], unless otherwise noted.

Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. The sensor can be attached to the structure with wax, adhesive or supplied mounting screw. The operating instructions manual for Type 8765A... provides detailed information regarding mounting surface preparation.

Technical Data

Type Number	Unit	8765A250M5
Acceleration range	g	±250
Acceleration limit	g _{pk}	±500
Threshold, nom. (noise 40 µV _{rms})	g _{rms}	0.002
Sensitivity, ±10 %	mV/g	20
Resonant frequency mounted, nom.	kHz	>50
Frequency response, ±5 %	Hz	1 ... 9,000
Amplitude non-linearity	%FSO	±1
Time constant, nom.	s	1
Transverse sensitivity, nom. (max. 3)	%	1.5

Environmental

Base strain sensitivity @ 250 µe	g/µe	0.015
Shock limit (1 ms pulse)	g _{pk}	5,000
Temperature coeff. of sensitivity	%/°F	-0.0022
Operating temperature range	°F	-65 ... 330

Output

Bias nom.	VDC	11
Impedance	Ω	≤100
Voltage full-scale	V	±5

Power Supply

Voltage	VDC	18 ... 30
Constant current	mA	2 ... 20

Construction

Sensing element	type	PiezoStar®
Housing/base	material	titanium
Degree of protection case/connector (EN 60529)	type	IP68
Connector	type	mini 4 pin pos.
Ground isolated		yes
Mass	grams	6.4
Mounting	type	cap screw

1 g = 9.80665 m/s², 1 in = 25.4 mm, 1 Gram = 0.03527 oz, 1 lbf-in = 0.113 N·m

Accessories Included

- Mounting wax
- #4-40x½" isolated mounting screw
- 2.5x12 mm isolated mounting screw

Type

- 8432
- 8446AE2
- 8446AM3

Optional Accessories

- Mini 4 pin neg. to 4 pin pos. 1784A...K02
- Mini 4 pin neg. to 3x BNC (max. length 10 m) 1784A...K03
- Cable, break out, 4 pin neg. to 3x BNC pos. 1756C
- Adhesive mounting base, 4-40 thd. 8462K01
- Adhesive mounting base, M2.5 thd. 8462K02

Ordering Key

Measuring range

±250 g, high temperature	250M5
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Type 8765A...

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Measure	Extension	Connect	Amplify	Output	Analyze
 Type 8765A250M5 IEPE		 Type 1784A... Mini, 4 pin neg. 3x BNC pos.	 Type 51... Power supply/ signal conditioner	 Type 1511 BNC pos. BNC pos.	 not supplied
 Type 8765A250M5 IEPE	 Type 1784A.K02 Miniature M4.5, 4 pin neg. ¼-28, 4 pin pos.	 Type 1756C...K03 Miniature ¼-28, 4 pin neg. 3x BNC pos.	 Type 51... Power supply/ signal conditioner	 Type 1511 BNC pos. BNC pos.	 not supplied

Fig. 1: Measuring chain